1642

RECEIVED

```
 3  <110> APPLICANT: Rondon, Isaac J
 4         Ladner, Robert C
 6  <120> TITLE OF INVENTION: BINDING PEPTIDES FOR CARCINOEMBRYONIC ANTIGEN (CEA)
 8  <130> FILE REFERENCE: Sequence Listing DYX-016.0 US
10  <140> CURRENT APPLICATION NUMBER: US 09/541,345
11  <141> CURRENT FILING DATE: 2000-04-03
13  <160> NUMBER OF SEQ ID NOS: 107
15  <210> SEQ ID NO: 1
16  <211> LENGTH: 16
17  <212> TYPE: PRT
18  <213> ORGANISM: Artificial Sequence
20  <220> FEATURE:
21  <223> OTHER INFORMATION: Description of Artificial Sequence: CEA binding
22         polypeptide
24  <220> FEATURE:
25  <221> NAME/KEY: VARIANT
26  <222> LOCATION: (1)
27  <223> OTHER INFORMATION: Xaa is Asn, Asp or is absent
29  <220> FEATURE:
30  <221> NAME/KEY: VARIANT
31  <222> LOCATION: (2)
32  <223> OTHER INFORMATION: Xaa is Trp
34  <220> FEATURE:
35  <221> NAME/KEY: VARIANT
36  <222> LOCATION: (3)
37  <223> OTHER INFORMATION: Xaa is Asp, Phe or Val
39  <220> FEATURE:
40  <221> NAME/KEY: VARIANT
41  <222> LOCATION: (5)
42  <223> OTHER INFORMATION: Xaa is Asn, Glu or Met
44  <220> FEATURE:
45  <221> NAME/KEY: VARIANT
46  <222> LOCATION: (6)
47  <223> OTHER INFORMATION: Xaa is Asn, Leu, Met or Phe
49  <220> FEATURE:
50  <221> NAME/KEY: VARIANT
51  <222> LOCATION: (7)
52  <223> OTHER INFORMATION: Xaa is Asp, Gly, Ile, Lys, Phe or Thr
54  <220> FEATURE:
55  <221> NAME/KEY: VARIANT
56  <222> LOCATION: (8)
57  <223> OTHER INFORMATION: Xaa is Ala, Gln, Gly, Lys or Thr
59  <220> FEATURE:
60  <221> NAME/KEY: VARIANT
61  <222> LOCATION: (9)
62  <223> OTHER INFORMATION: Xaa is Arg, Asn, Asp, Glu or Gly
64  <220> FEATURE:
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RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/541,345

DATE: 08/02/2001
TIME: 17:35:41

Input Set : A:\09541345.txt
Output Set: N:\CRF3\08022001\I541345.raw

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65  <221> NAME/KEY: VARIANT
66  <222> LOCATION: (10)
67  <223> OTHER INFORMATION: Xaa is Gln, Leu or Gly
69  <220> FEATURE:
70  <221> NAME/KEY: VARIANT
71  <222> LOCATION: (11)
72  <223> OTHER INFORMATION: Xaa is Ala, Trp or Tyr
74  <220> FEATURE:
75  <221> NAME/KEY: VARIANT
76  <222> LOCATION: (12)
77  <223> OTHER INFORMATION: Xaa is Ala, Gly, His, Phe, Thr or Val
79  <220> FEATURE:
80  <221> NAME/KEY: VARIANT
81  <222> LOCATION: (14)
82  <223> OTHER INFORMATION: Xaa is Asn, Gln, Phe, Ser or Val
84  <220> FEATURE:
85  <221> NAME/KEY: VARIANT
86  <222> LOCATION: (15)
87  <223> OTHER INFORMATION: Xaa is Arg, Leu, Pro or Ser
89  <220> FEATURE:
90  <221> NAME/KEY: VARIANT
91  <222> LOCATION: (16)
92  <223> OTHER INFORMATION: Xaa is Leu, Ser, Trp or Tyr
94  <400> SEQUENCE: 1
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W-->   95 Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa
        96   1   5   10   15

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 99  <210> SEQ ID NO: 2
100  <211> LENGTH: 16
101  <212> TYPE: PRT
102  <213> ORGANISM: Artificial Sequence
104  <220> FEATURE:
105  <223> OTHER INFORMATION: Description of Artificial Sequence: family of
106        preferred CEA binding moieties
108  <220> FEATURE:
109  <221> NAME/KEY: VARIANT
110  <222> LOCATION: (1)
111  <223> OTHER INFORMATION: Xaa is Asn or Asp
113  <220> FEATURE:
114  <221> NAME/KEY: VARIANT
115  <222> LOCATION: (6)
116  <223> OTHER INFORMATION: Xaa is Phe, Met, Leu or Asn
118  <220> FEATURE:
119  <221> NAME/KEY: VARIANT
120  <222> LOCATION: (7)
121  <223> OTHER INFORMATION: Xaa is Asp, Gly, Ile, Lys, Phe or Thr
123  <220> FEATURE:
124  <221> NAME/KEY: VARIANT
125  <222> LOCATION: (9)
126  <223> OTHER INFORMATION: Xaa is Arg, Asn, Asp, Glu, Gly or Trp
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RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/541,345

DATE: 08/02/2001
TIME: 17:35:41

Input Set : A:\09541345.txt
Output Set: N:\CRF3\08022001\I541345.raw

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128 <220> FEATURE:
129 <221> NAME/KEY: VARIANT
130 <222> LOCATION: (12)
131 <223> OTHER INFORMATION: Xaa is Ala, Gly, His, Phe, Thr, Tyr or Val
133 <220> FEATURE:
134 <221> NAME/KEY: VARIANT
135 <222> LOCATION: (15)
136 <223> OTHER INFORMATION: Xaa is Arg, Leu, Pro or Ser
138 <220> FEATURE:
139 <221> NAME/KEY: VARIANT
140 <222> LOCATION: (16)
141 <223> OTHER INFORMATION: Xaa is Leu, Ser, Trp or Tyr
143 <400> SEQUENCE: 2
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W--> 144 Xaa Trp Val Cys Glu Xaa Xaa Lys Xaa Gln Trp Xaa Cys Asn Xaa Xaa
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145   1               5                   10                  15
148 <210> SEQ ID NO: 3
149 <211> LENGTH: 10
150 <212> TYPE: PRT
151 <213> ORGANISM: Artificial Sequence
153 <220> FEATURE:
154 <223> OTHER INFORMATION: Description of Artificial Sequence: CEA binding
155       loop
157 <220> FEATURE:
158 <221> NAME/KEY: VARIANT
159 <222> LOCATION: (2)
160 <223> OTHER INFORMATION: Xaa is Asn, Glu or Met
162 <220> FEATURE:
163 <221> NAME/KEY: VARIANT
164 <222> LOCATION: (3)
165 <223> OTHER INFORMATION: Xaa is Asn, Leu, Met or Phe
167 <220> FEATURE:
168 <221> NAME/KEY: VARIANT
169 <222> LOCATION: (4)
170 <223> OTHER INFORMATION: Xaa is Asp, Gly, Ile, Lys, Phe or Thr
172 <220> FEATURE:
173 <221> NAME/KEY: VARIANT
174 <222> LOCATION: (5)
175 <223> OTHER INFORMATION: Xaa is Ala, Gln, Gly, Lys or Thr
177 <220> FEATURE:
178 <221> NAME/KEY: VARIANT
179 <222> LOCATION: (6)
180 <223> OTHER INFORMATION: Xaa is Arg, Asn, Asp, Glu or Gly
182 <220> FEATURE:
183 <221> NAME/KEY: VARIANT
184 <222> LOCATION: (7)
185 <223> OTHER INFORMATION: Xaa is Gln, Gly or Leu
187 <220> FEATURE:
188 <221> NAME/KEY: VARIANT
189 <222> LOCATION: (8)
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RAW SEQUENCE LISTING   DATE: 08/02/2001
PATENT APPLICATION: US/09/541,345   TIME: 17:35:41

Input Set : A:\09541345.txt
Output Set: N:\CRF3\08022001\I541345.raw

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190 <223> OTHER INFORMATION: Xaa is Ala, Trp or Tyr
192 <220> FEATURE:
193 <221> NAME/KEY: VARIANT
194 <222> LOCATION: (9)
195 <223> OTHER INFORMATION: Xaa is Ala, Gly, His, Phe, Thr or Val
197 <400> SEQUENCE: 3
W--> 198 Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys
199    1              5                   10
202 <210> SEQ ID NO: 4
203 <211> LENGTH: 16
204 <212> TYPE: PRT
205 <213> ORGANISM: Artificial Sequence
207 <220> FEATURE:
208 <223> OTHER INFORMATION: Description of Artificial Sequence: CEA binding
209         polypeptide
211 <400> SEQUENCE: 4
212 Asn Trp Val Cys Asn Leu Phe Lys Asn Gln Trp Phe Cys Asn Ser Tyr
213    1              5                   10                  15
216 <210> SEQ ID NO: 5
217 <211> LENGTH: 16
218 <212> TYPE: PRT
219 <213> ORGANISM: Artificial Sequence
221 <220> FEATURE:
222 <223> OTHER INFORMATION: Description of Artificial Sequence: CEA binding
223         polypeptide
225 <400> SEQUENCE: 5
226 Asp Trp Val Cys Glu Asn Lys Lys Asp Gln Trp Thr Cys Asn Leu Leu
227    1              5                   10                  15
230 <210> SEQ ID NO: 6
231 <211> LENGTH: 16
232 <212> TYPE: PRT
233 <213> ORGANISM: Artificial Sequence
235 <220> FEATURE:
236 <223> OTHER INFORMATION: Description of Artificial Sequence: CEA binding
237         polypeptide
239 <400> SEQUENCE: 6
240 Asn Trp Asp Cys Met Phe Gly Ala Glu Gly Trp Ala Cys Ser Pro Trp
241    1              5                   10                  15
244 <210> SEQ ID NO: 7
245 <211> LENGTH: 16
246 <212> TYPE: PRT
247 <213> ORGANISM: Artificial Sequence
249 <220> FEATURE:
250 <223> OTHER INFORMATION: Description of Artificial Sequence: CEA binding
251         polypeptide
253 <400> SEQUENCE: 7
254 Asp Trp Val Cys Glu Lys Thr Thr Gly Gly Tyr Val Cys Gln Pro Leu
255    1              5                   10                  15
258 <210> SEQ ID NO: 8
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RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/541,345

DATE: 08/02/2001
TIME: 17:35:41

Input Set : A:\09541345.txt
Output Set: N:\CRF3\08022001\I541345.raw

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259  <211> LENGTH: 16
260  <212> TYPE: PRT
261  <213> ORGANISM: Artificial Sequence
263  <220> FEATURE:
264  <223> OTHER INFORMATION: Description of Artificial Sequence: CEA binding
265        polypeptide
267  <400> SEQUENCE: 8
268  Asn Trp Phe Cys Glu Met Ile Gly Arg Gln Trp Gly Cys Val Pro Ser
269    1               5                  10                  15
272  <210> SEQ ID NO: 9
273  <211> LENGTH: 16
274  <212> TYPE: PRT
275  <213> ORGANISM: Artificial Sequence
277  <220> FEATURE:
278  <223> OTHER INFORMATION: Description of Artificial Sequence: CEA binding
279        polypeptide
281  <400> SEQUENCE: 9
282  Asp Trp Val Cys Asn Phe Asp Gln Gly Leu Ala His Cys Phe Pro Ser
283    1               5                  10                  15
286  <210> SEQ ID NO: 10
287  <211> LENGTH: 12
288  <212> TYPE: PRT
289  <213> ORGANISM: Artificial Sequence
291  <220> FEATURE:
292  <223> OTHER INFORMATION: Description of Artificial Sequence: parental
293        domain for design of microprotein display library
295  <220> FEATURE:
296  <221> NAME/KEY: VARIANT
297  <222> LOCATION: (1)..(12)
298  <223> OTHER INFORMATION: amino acid positions 4 and 9 are invariant Cys;
299        all other positions Xaa are varied but not Cys, to
300        provide a library of 2x10(8) different peptides
301        based on the template sequence
303  <400> SEQUENCE: 10
```
W-->
```
304  Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa
305    1               5                  10
308  <210> SEQ ID NO: 11
309  <211> LENGTH: 11
310  <212> TYPE: PRT
311  <213> ORGANISM: Artificial Sequence
313  <220> FEATURE:
314  <223> OTHER INFORMATION: Description of Artificial Sequence: parental
315        domain for design of microprotein display library
317  <220> FEATURE:
318  <221> NAME/KEY: VARIANT
319  <222> LOCATION: (1)..(11)
320  <223> OTHER INFORMATION: amino acid positions 3 and 9 are invariant Cys;
321        all other positions Xaa are varied but not Cys, to
322        provide a library of 1x10(9) different peptides
```

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY   DATE: 08/02/2001
PATENT APPLICATION: US/09/541,345   TIME: 17:35:42

Input Set : A:\09541345.txt
Output Set: N:\CRF3\08022001\I541345.raw

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L 95 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L 144 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2
L 198 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L 304 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10
L 326 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11
L:348 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:370 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:395 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14
L:415 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:435 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16
L:460 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:495 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:525 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19
L:555 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20
L:623 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23
L:734 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:754 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30
L:774 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31
L:799 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32
L:834 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33
L:864 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34
L:894 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:973 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36
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